AN ARCHAEOLOGICAL SEQUENCE FROM THE VICINITY OF BUGA, COLOMBIA

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This paper summarizes the results of a campaign of reconnaissance and excavation carried out during the summer of 1964 near the town of Buga (Dept. of Valle) in the Cauca Valley of Colombia (fig. 1). The area was previously an archaeological blank, lying south of the region where the various "Quimbaya" pottery styles have been defined (Bennett, 1944, pp. 59-77; Bruhns, ms.), and 55 km. north of the departmental capital of Cali near which James Ford had worked in 1941 (Ford, 1944).

Some 30 km. to the west, in the Pacific drainage of the Cordillera Occidental, several house platforms and graves have been tested in the upper Calima Valley around the new reservoir near the town of Darién, but none of these sites produced either stratification or evidence of long occupation (Bray, 1963). An easy route links Darién with Buga, and it was hoped that the deep silts of the Cauca Valley might yield the kind of stratified sites which were absent in the Cordillera.

The Cauca Valley at this point lies just under 1000 m. above sea level. Its floodplain varies in width from 10 to 15 km. and provides some of the richest agricultural land in the country. The early Spanish chroniclers reported that both the mountain slopes and the valley floor were densely populated by village farmers who cultivated permanent fields and in places practiced irrigation (Hernández de Alba, 1948, pp. 297-307; Reichel-Dolmatoff, 1961). No such fields were visible on the ground in 1964, but they are common in the Calima Valley and appear on air photographs of other areas of the Cauca flatland as a mosaic of small squarish units showing through the pattern of large present-day fields.

Despite its obvious attractions, archaeologists have fought shy of the valley floor, discouraged perhaps by Ford's lack of success in discovering sites there. This led Ford to discount the chronicle evidence and to suggest that in pre-Spanish times the valley bottom may have been mainly swampland or else savannah which would have been "an effective barrier to the milpa system of agriculture of the Indians" (Ford, 1944, p. 12).

Our own survey corroborated the historical accounts and demonstrated that the valley floor was thickly settled from at least the 12th century A.D. until the Conquest. There are no house platforms and no recognizable architectural features or middens thick enough to show up as mounds, but sites appear as scatters of sherds in tilled fields or as dark lenses in the banks of the Río Cauca whose present course cuts through several ancient villages.

The area most intensively surveyed (from 3 km. north of Buga to 20 km. south) produced 28 settlements spanning three ceramic phases which have been named, in chronological order, Yotoco, Sonso, and Moralba. The true density of settlement would have been much higher, since no surface indications are visible at sites which lie under pasture or are buried below the reach of the plow. Accurate assessment is possible only along the course of the river, whose banks provide a huge natural section through the entire floodplain. Sites exposed in the banks of the Cauca were rarely more than 2 km. apart in a direct line, and were often much closer together. Many of the settlements were substantial villages. Midden deposits at the Moralba site were traced for more than 250 m. in the river bank, and at Yotoco Ferry the exposure was at least 330 m. in length. The most extensive site was Hacienda Jordán where sherds of the Sonso style were scattered over 6 to 8 hectares.

The cultural sequence outlined below is derived from excavations at the Finca Moralba and Yotoco Ferry sites, supplemented by test pits at other localities. In defining the ceramic styles we have also taken into consideration our surface collections and a good deal of funerary pottery in museums or private hands. The key stratigraphy comes from Bray's excavation at Moralba on the west bank of the Cauca 3.5 km. downstream from the bridge on the Buga-Darién road (fig. 1). At this site the Yotoco, Sonso and Moralba components were separated from each other by levels of sterile silt. Moseley's excavation at the Yotoco Ferry site (Finca San Joaquín), on the east bank of the river almost opposite the town of Yotoco, was designed to provide further information about the Yotoco phase, and has produced the only acceptable radiocarbon measurements for that period.

Studies of the environmental history of the floodplain are not yet completed, but there is nothing to support the hypothesis that the valley floor was one vast swamp during the late pre-Spanish period. Unfortunately the pollen evidence is not as detailed as one would like. The total grain count from the excavations was small, and from many levels (including the archaeological strata) no pollen was recovered at all. Conclusions are therefore only tentative, but no sample, whatever its age, indicated a predominance of forest or swamp flora (Wymstra, ms.).

The oldest samples (Moralba excavation from 0.6 m. below the Yotoco stratum to the water table at 3.5 m. below the surface) predate any archaeological material, and have led Wymstra to postulate open vegetation with a "relatively high content of Gramineae with some elements from a Savanna woodland (Curatella, Brysonima)." Open vegetation is also suggested by the later, post-archaeological, samples from both Moralba and the Yotoco Ferry site, and it seems unlikely that conditions in the Valley have changed much during the period under discussion. Reichel-Dolmatoff has already pointed out that grassland was not necessarily an obstacle to cultivation by Sub-Andean tribes (Reichel-Dolmatoff, 1961, p. 84).

The Yotoco Phase

The Yotoco phase was represented in the two main excavations and by sherd collections from four other settlements. Some funerary vessels were obtained from local farmers, and further examples exist in the Museo Nacional, the Museo del Oro, and various private collections.

The Yotoco lithic industry comprises ground axes and manos, and a selection of crudely chipped artifacts made in the settlements from waterworn cobbles brought from the nearby hills. No projectiles were found, and the stone work does not fall into readily classifiable types. In many cases it is impossible to say whether a particular specimen is an artifact or a piece of chipping waste. There is little secondary retouch, and the bulk of the material is made up of primary flakes, split cobbles, and a few roughly made core tools including some scrapers. One bank exposure yielded part of a more finely retouched artifact of transparent obsidian, but this was the only fragment of obsidian found during three months' work.

The most diagnostic material is the pottery, especially the fine sand-tempered wares whose shapes are illustrated in figs. 2 and 3. There is a general tendency for rims to be short, straight, and angled outwards at about 45 degrees. On some of the more elaborate forms the vessel is conceived as a series of horizontal zones or storeys of which the upper may overhang the lower (fig. 2 d, i, n), and the shape is sometimes emphasized by slips of contrasting colors. The most distinctive shape, however is the Yotoco Bowl (fig. 3), a shallow bowl with a slightly incurving profile and an externally thickened rim. This is the "type fossil" for the phase as a whole, and is common both in graves and on domestic sites where it is outnumbered only by utilitarian ollas. At Yotoco Ferry 20.9% of the total excavated rim sherds came from Yotoco Bowls, and at Moralba the figure was 16.3%. Less common shapes include pot stands (fig. 2 l) and "alcarrazas," bottles with double spout and bridge handles (fig. 2 h).

Yotoco fine ware is covered with a slip of red, orange, lustrous white, or any mixture of these. Many bowls are red inside and orange on the outside. Another favorite combination consists of alternate bands or panels of red and white. Some sherds have appliqué pellets, bands of fine punctate, or animal shapes pricked into the clay (fig. 3 b), but the most frequent decoration is black resist painting over the colored slips described above. Most of the individual motives are found only during the Yotoco phase and disappear before the succeeding period.

Resist-painted designs include dot-filled circles, rosettes, arch-shaped motives, narrow bands filled with rows of reserved dots, hourglass patterns formed from two triangles placed point to point, and various complex arrangements of spirals, stepped panels and zigzag bands (fig. 3). On the more open shapes this decoration covers both

the inside and outside of the vessel, and a few Yotoco Bowls have spirals in white positive painting on their inner surfaces. Finely incised geometric designs occured on a small minority of sherds from the excavations.

The coarser, utilitarian pottery consists of flasks, ollas and storage vessels, bowls (including large, plain versions of the Yotoco Bowl), and cups with pedestal feet. Rims and shoulders are occasionally ornamented with rows of slashes or notches.

The Yotoco Ferry site also yielded a fragment of embossed sheet gold and the secondary urn burial of a child accompanied by bone and gold beads. Burial within the village seems to have been the normal practice, but this urned inhumation is so far the only one of its kind. The usual form of burial was interment, with or without offerings, in pit graves varying from 25 cm. to 2.0 m. in depth, and from 40 cm. to 1.0 m. in diameter.

The date for the start of the Yotoco phase is still uncertain, but there are radiocarbon determinations of A.D. 1100 ± 140 (IVIC-598) and A.D. 1175 ± 65 (GrN-4694) for a middle stage of the occupation at the Yotoco Ferry site. The Yotoco component at Moralba gave the figures 890 B.C. ± 270 (IVIC-597) and 800 B.C. ± 50 (GrN-5762) but, even allowing for the large statistical error, this seems unacceptably early. Nothing indicates such a long duration for the Yotoco phase, and the later dates are more in line with those for the Sonso phase which followed directly after it at about A.D. 1200. Fuller discussion of the radiocarbon age determinations is reserved for the Appendix.

The antecedents of the Yotoco style are unknown, and its exact distribution has still to be worked out. The first publication to illustrate Yotoco pottery, Pineda Giraldo, 1945, figs. 5-8, listed five examples from the Municipio of Restrepo, and since that date it has been considered an element in the so-called "Calima style." The term 'Calima' has been sadly misused in archaeological literature. There is no single "Calima style," still less a "Calima culture," and the word should only be employed in its strict geographical sense to describe material, of whatever date, known to have come from the Calima Valley. It must not be applied, as it so often is, to any object bought from dealers in the town of Restrepo which serves as a clearing house for antiquities drawn from a wide surrounding area.

Examination of museum and private collections confirms that Yotoco pottery is fairly common in graves throughout the Municipio of Restrepo, but it does not seem to cross the divide into the Calima Valley proper, where a field survey revealed no trace of a Yotoco occupation (Bray, 1963). It would not be surprising, however, if a few Yotoco vessels reached Calima as trade pieces, and one such may be a typical Yotoco Bowl in the Museo Nacional (no. 46-XVII-6564) labelled, "Calima; Cuchilla del Sinaí."

The homeland of the Yotoco style is undoubtedly the Cauca Valley and the adjacent slopes of the Cordillera Occidental, but its northern and southern frontiers will only be established by further research. It was found all over the area of intensive survey, but is not mentioned by Ford in his study of the district around Cali. Presumably, therefore, the southern frontier falls somewhere in the stretch of valley between Vijes and Cali.

In the other direction the town of Sevilla, 45 km. north of Buga, marks the approximate limit of the "Quimbaya" (or "Quindío") styles. There is still no reliable sequence or chronology for Quindío pottery, but a stylistic analysis by Dr. Karen Bruhns (ms.) suggests that there was no pure Yotoco phase in the area. There was, however, trade up and down the Andes during the centuries before the Spanish Conquest, carrying Quindío wares to the Department of Nariño on the Ecuadorian frontier (Reichel-Dolmatoff, 1965, pls. 19, 20) and vessels of Ford's Quebrada Seca style downstream into the Quindío (Duque Gómez, 1963, pl. 8).

This route was certainly in use during the Yotoco period. Yotoco pottery has been found near Anserma (Werner collection) and in other parts of the Quindío. Three bowls from the Museo Nacional are said to come from Quindío sites (Nachtigall, 1961, pls. 265, 269, 270), and other examples could be quoted from this and other collections.

Bruhns, working independently of the writers, recognized that certain vessels of her Two Color Negative group bear decoration which falls outside the normal Quindío repertory (Bruhns, ms., figs. 14 d-f), and for these rare categories she proposed influence or trade from somewhere further south. The resist-painted decoration is exactly like that on Yotoco wares, and Bruhns now accepts (in a personal communication) that the source was probably the Yotoco region. It is not yet clear whether these Quindío pots are imports or local copies of Yotoco vessels.

The Sonso Phase

Nine Sonso villages were identified on the valley floor, and nine additional sites which yielded only small collections of sherds are tentatively assigned to this phase.

Moralba during the period of the Sonso phase was a village of cane and pisé dwellings, one of which had a floor of beaten clay. Unfortunately the area cleared during excavation did not include the ground plan of a complete house. Stone was worked on the site into manos and metates, axes, balls about the size of oranges, and crudely chipped core and flake artifacts similar to those of the Yotoco phase.

Sonso pottery marks a break with the Yotoco tradition and seems not to be derived from it. At one locality, Yotoco and Sonso

sherds were found together on the surface and in the plow soil, but there are reasons for considering this a mixed deposit rather than a transitional assemblage. Other sites show no evidence of continuity. The simple and elegant Yotoco shapes disappear, to be replaced by a great variety of new and more elaborate forms. Plastic ornament, incision, and impressed decoration predominate over painting. Orange and lustrous white slips go out of use, and the quality and surface finish of Sonso pottery are usually inferior to those of the best Yotoco wares. Shapes include cups and jars with pedestal or ring feet, ollas, several kinds of bowls, and large globular flasks with constricted necks and out-turned rims. Some of these flasks have one vertical handle low down on the body and two others higher up, allowing the vessel to be carried or suspended by a cord (Pineda Giraldo, 1945, figs. 1, 3; Wassén, 1936, figs. 9 a-b, 11 c). Most domestic sites also yield sherds of large and very heavy storage jars.

In the region of La Cumbre (fig. 1) treasure-hunters have found similar jars serving as urns to contain secondary inhumations (Bray and others, 1968, p. 49). Sonso funerary pottery, known mainly from shaft-and-chamber tombs in the Cordillera Occidental, includes also gourd-shaped vessels, closed flasks with a hole-like orifice in the side wall (Wassén, 1936, fig. 6 c), and 'Janus head' lids or covers ornamented with two sets of human features placed back to back. The rare tripod bowls have short, hollow feet which are quite unlike the thin, solid legs of San Agustín, Tierradentro, and the sites near the Ecuadorian frontier.

Handles are found chiefly on globular flasks and ollas. The usual type is a vertical strap some 4 cm. in width and enclosing a circular space large enough to take a finger or a thick rope. Another rare but distinctive form of handle consists of a Y-shaped strip of clay linking the rim and shoulder of the pot. Alcarrazas with double spout and bridge handles last into the Sonso period on cordilleran sites. One resist-painted example came from a Sonso grave in the valley of El Dorado (Wassén, 1936, fig. 6 a), and fragments were collected at the site of Los Chorros in the foothills overlooking the Río Cauca (fig. 1). In the Cauca flatland, alcarraza sherds are known only from a surface collection made at the one site where there is a possibility of Yotoco admixture.

Painted decoration is rare, but most sites yield a few sherds ornamented with red stripes over a lighter background (fig. 4 o). More typical of the Sonso complex are vessels on which plain red-slipped zones contrast with untreated areas bearing incised or plastic decoration (fig. 4 g, q). A band of red slip or paint is frequently present on the edges of olla and flask rims.

The designs on the resist-painted wares of the Sonso complex are invariably executed in organic black on a red slip, and show a retrogression from those of the Yotoco phase. Where Yotoco motives are intricate and varied, including all sorts of spiral and stepped patterns,

those on Sonso pottery are based on the single theme of bands of parallel lines which intersect each other at angles, leaving between them triangular or polygonal blocks of solid color, relieved only by reserved circles.

Although resist-painted sherds have not yet been found at Sonso villages in the Cauca floodplain, the technique occurs at Los Chorros and on two vessels in a grave lot from El Espinal on the west bank of the river (fig. 1). Resist-painted wares are always scarce in settlement debris, but excavations at Berlin and La Primavera in the Calima valley demonstrate that identical pieces may occasionally turn up in domestic rubbish. Larger samples from Cauca village sites may be expected to include some of this pottery, but for the moment it is best represented in the cemeteries of the Calima valley (Bray, 1962; Pineda Giraldo, 1945, figs. 30-34), and elsewhere on both the eastern and Pacific slopes of the Cordillera Occidental. The distribution extends as far south as La Cumbre where vessels with characteristic block-and-stripe decoration are said to come from the same graves as the large urns.

The most common methods of decoration in Sonso phase pottery are:

1. Appliqué and modelling. Rim protuberances (fig. 4 n), raised cordons forming straight, zigzag or wavy patterns (fig. 4 h, k), rows of large pellets (fig. 4 f), and stylized human faces with nose rings and coffee bean eyes (fig. 4 i, m). On certain vessels, limbs and necklaces are also indicated (fig. 4 m; Reichel-Dolmatoff, 1965, fig. 45). A little hand from one of these jars was found in the Moralba excavation, and the type is common in the Western Cordillera (Pineda Giraldo, 1945, fig. 18).

2. Incision. Crisscross or lattice patterns (fig. 4 a, b), and bands of parallel lines which are frequently separated by rows of impressions (fig. 4 c, d, l). These dot-and-line patterns may occur as 'tear bands' or tattoo marks on the faces of anthropomorphic vessels.

3. Impression. Cane stamping, fingertip impressions, pits, triangular impressions, and stab marks or notches. Rows of impression are commonly found on the upper faces of everted olla and flask rims (fig. 4 p), or in horizontal bands around the necks of such vessels. Most of the appliqué cordons bear notched or fingertip ornament.

Often several of the above techniques are combined on a single pot.

From clay the Sonso people also manufactured spindle whorls, roller stamps and a few figurines (fig. 4 e). The Moralba excavation yielded a tubular, side-blown flute made of clay and decorated with four human faces modelled in relief. This instrument has a single finger hole, and the ends of the tube are narrowed to leave only restricted openings. Undecorated flutes of this kind (open at one or

both ends, and with as many as three side holes) were collected in both the Cauca and Calima valleys (see also Cubillos, 1958, pl. I, fig. 5), but their archaeological contexts are unknown.

Sonso pottery is more widely distributed than Yotoco ware and has been traced from Vijes northwards along 50 km. of the valley floor. Still further south, at Palmaseca 10 km. north-east of Cali, Professor Julio Cubillos has excavated material which has much in common with Sonso. In the radiocarbon report (Long and Mielke, 1967, p. 377) Palmaseca is said to belong within the Río Bolo complex as defined by Ford (1944, pp. 31-37), but many of the unpublished sherds (kindly shown to one of us by Cubillos) can be precisely matched on our Sonso sites.

The style is even more widespread in the Western Cordillera, extending to the higher slopes of the Pacific drainage above the tropical forest zone. It has been recorded as far north as Andinapoles on the fringe of the Quimbaya territory, along the Río Calima downstream to its confluence with the Río Bravo at Campoalegre, throughout the entire municipio of Restrepo and the region of El Dorado, at a number of sites around La Cumbre, and in the drainage of the upper Río Dagua near Atuncela and close to the town of Dagua itself (fig. 1). The slopes of the Central Cordillera have barely been explored, but a few Sonso-like vessels are known to have been found there, including one pot with block-and-stripe resist painting.

The timespan of the Sonso phase is suggested by a series of radiocarbon measurements. (See Appendix for full details). The base of the Sonso component at Moralba is dated A.D. 1240 ± 60 (IVIC-596) and its upper interface at 1550 ± 70 (GrN-4697). Cubillos' Palmaseca excavation has a measurement of 1140 ± 180 (SI-254), and a river bank exposure at Yocambo gave the figure 1580 ± 70 (GrN-4695). Sonso deposits in the Calima Valley add two further determinations: A.D. 1235 ± 60, (IVIC-160) from a wooden trough associated with Sonso pottery at Finca Varsovia, and 1250 ± 85 (NPL-60) from a rubbish deposit in an unused shaft-and-chamber tomb in the Primavera cemetery.

The Sonso phase should therefore begin around A.D. 1200 ± 75 years, and last until the mid 16th century when the Spaniards reached the Cauca Valley and founded cities there. The archaeological record agrees fairly closely with Spanish accounts of the Gorrón, Lile and Buga Indians (Hernández de Alba, 1948, pp. 297-307; Reichel-Dolmatoff, 1961). The Gorrones, who occupied lands on the west bank of the Río Cauca, are described as fishermen and cultivators of maize, sweet manioc, and many species of fruit tree. Hunting was of only secondary importance.

Maize agriculture can perhaps be inferred archaeologically from the presence of manos and metates, and the Moralba excavation produced evidence for cultivated avocados. Animal bones when they occur are well-preserved, but their scarcity confirms the lack of interest in hunting. Manioc was eaten in the form of boiled tubers rather than

flour cakes, and no griddles can therefore be expected on archaeological sites. However, pollen grains of Croton Manihot type were relatively abundant in the levels just above and below the Sonso stratum, and Wymstra (ms.) thinks it probable that the plant was cultivated in the vicinity.

The makers of Sonso pottery resemble the other peoples who inhabited the flanks of the Cauca and Magdalena valleys, sharing what Reichel-Dolmatoff has called the 'Sub-Andean' culture pattern distinguished by small political groupings, efficient agriculture, a common level of technology, and such archaeological traits as shaft-and-chamber tombs, roads, boulder metates, petroglyphs, and artificially levelled house platforms on hill slopes (Reichel-Dolmatoff, 1961; 1965, pp. 80-116). All these are present in the cordilleran version of the Sonso complex, although house platforms and rock carvings are not found in the Cauca floodplain where the terrain is flat and there are no boulders.

Sonso pottery shows a general family likeness to the Río Bolo and Quebrada Seca wares found immediately to the south (Ford, 1944). Among the shared traits are anthropomorphic modelling, crisscross incised patterns, turned over 'strap rims' (fig. 4 j), contrasting slipped and unslipped zones, and some use of slashed or punctate ornament. In each of these styles, however, the individual traits are combined in a distinctive way, and each complex has its own quite characteristic range of shapes.

Sonso metalwork and ceramics also show links with the Quindío, but in the absence of a relative chronology for the 'Quimbaya' styles it is impossible to say which categories of Quindío pottery are contemporary with Sonso. The Quindío Champlevé and Incised Brownware styles (Bennett, 1944, pp. 61-76) are not found so far south, nor is the Tricolor Complex which Bruhns (ms., pp. 72-77) thinks may be attributed to the historical Quimbaya tribe. Also missing are such diagnostic 'Quimbaya' forms as hollow or slab figurines, figure jars, bucket-shaped amphorae, and tall pot stands. Quindío domestic pottery is poorly known, but many of the Sonso bowl and cup shapes occur in the coarser funerary wares, as do most of the decorative features listed in the previous paragraph. At least two Sonso anthropomorphic jars made their way into the Quindío (Duque Gómez, 1963, pl. 26; Hernández de Alba, 1961, fig. 20), and three-handled jars or flasks have also been found there (Bruhns ms., p. 95).

The resist-painted wares raise several important questions. Haberland (1957) has discussed the distribution of this technique from Ecuador to the Isthmus, but his study was hampered by the lack of regional pottery sequences and by the shortage of chronological data. In the vicinity of Buga it proved possible to differentiate an early (Yotoco) resist-painted style based on complex and curvilinear designs, and a later (Sonso) style with motives limited to block-and-stripe patterns. If this distinction is applicable to the rest of Colombia,

block-and-stripe designs may turn out to have a chronological value as indicators of a late pre-Conquest date. Until further local sequences become available this hypothesis is more a prophecy than an established fact, but similar designs can be traced all the way from northern Ecuador to Panama as a common element in a number of otherwise dissimilar pottery styles. The use made of the individual motives varies from one region to another, but block-and-stripe patterns remain the basic design units.

The Nariño ceramics described by Bennett extend across the frontier into the Carchi province of Ecuador where they belong to the Cara phase which Meggers places between about A.D. 500 and the Inca conquest (Bennett, 1944, pp. 45-54; Meggers, 1966, pp. 142-148). The various substyles span several centuries and may not all be contemporary, but one significant group of vessels has resist-painted block-and-stripe designs. These were not illustrated by Bennett, but have become common on the commercial market over the last few years as the result of illicit excavation by guaqueros. Contact between the Quindío and Nariño provinces is proved by reciprocal trade in pottery.

In detail the patterns on Quindío Two Color Negative and Three Color Negative wares are not very similar to those of Nariño or Sonso products. However the basic motives are still block-and-stripe designs, and a few isolated Quindío vessels do in fact come very close to Sonso types (Bruhns, ms., fig. 11 e).

Further north still, the resist decoration on certain vessels of the Chiriquí phase in Panama is uncannily similar to that of the Quindío, and the presence in the Isthmus of Colombian gold objects of "Darién" and "Quimbaya" styles is evidence of trade contact between the two areas. MacCurdy illustrates Chiriquí jars whose ornamentation closely resembles the block-and-stripe decoration of the Sonso phase in the Cauca valley, but he also lists a whole range of motives which are unlike anything known from Colombia (MacCurdy, 1911, pls. XXVIIa and XXVIIIa). Linares de Sapir dates the Chiriquí phase in the Gulf coast to the period between A.D. 1100 and the Spanish Conquest, although she points out that it may have begun earlier in the Chiriquí highlands (Linares de Sapir, 1968, p. 86).

The Moralba Phase

The Moralba phase stratigraphically follows Sonso but is known only from the type site. Even here the sample is small and inadequate. The definition is based on sherds from at least six vessels found at different parts of the excavation but in the same stratigraphic position. There was no other archaeological refuse, no sign of post holes, and no midden accumulation to indicate anything more than short and transitory occupation of the site.

The pottery is very homogenous (fig. 5). Five of the vessels

are simple open bowls 23-25 cm. in diameter, and the sixth is a bowl with a thickened rim ornamented on the top with two rows of impressed triangles leaving a raised zigzag in between them. All the pottery is hand made, and three of the shallow bowls are of fine sand-tempered ware with a yellowish cream slip. Two of these cream vessels have red geometric designs painted on their inner surfaces, and the third has a plain red interior (fig. 5 a, b). The few known Moralba sherds owe little (except perhaps the use of triangular impressions) to the Sonso tradition.

Nothing resembling this Moralba pottery came to light during the field survey or from the study of museum collections. It is still undated, but we tentatively suggest it may be a native ware of the early Colonial period. Aboriginal settlement in the valley reached its climax during the Sonso period which, on the basis of radiocarbon measurements, seems to have lasted up to the Conquest. Soon after the arrival of the Spaniards the number of Indians was greatly reduced and most of the survivers were physically and culturally absorbed into the mestizo population. This development could well account for the scarcity of sites with Moralba pottery and for the complete lack of pagan burials with offerings in this style.

Buga Ware

Under this heading are grouped more than 50 vessels from at least 12 different localities. The pottery, which includes several grave lots, was acquired at farmhouses in widely separated parts of the valley, and has not passed through the hands of dealers or collectors. Proveniences may be taken as accurate, but background information is scanty and cannot be checked. The pottery, however, forms a homogenous assemblage which does not fit easily into the sequence of phases outlined above. All the vessels are said to come from graves, and no settlements are known with comparable material.

The principal shapes of Buga Ware are shown in fig. 6. The most common form is a conical jar with a sharp keel, round base, and two vertically perforated string-hole lugs placed opposite each other just below the rim (fig. 6 e). Similar lugs recur on most of the other forms, and Buga Ware in general is marked by its lack of decoration and by the poor quality of its manufacture. Vessels are often uneven and lopsided, with thick walls and poorly smoothed surfaces. Some are red slipped, and a few have vertical stripes of thin red paint over a dark or buff background. Many of the pots have been "killed" by means of a hole knocked through the side or base.

Associated with this crude ware are a few finer vessels whose decoration hints at links with the Sonso tradition. Traits common to both styles include fingertip impressions below the rim, incised parallel lines (sometimes separated by dots), and zoned decoration in which areas of red slip contrast with unslipped panels of incised or pitted

ornament. Stone balls also occur in both complexes.

It is possible therefore that Buga Ware is merely a funerary constituent of the Sonso phase in the Cauca Valley, but nothing of the kind has turned up in the many Sonso tombs known from the Western Cordillera. Nor can the assemblage as a whole be matched in our Cauca excavations or among surface collections from Sonso sites. In sherd form Buga pottery is not easily distinguishable from Sonso coarse ware, but the diagnostic string-hole lug found on about half of our Buga vessels is virtually absent from Sonso collections.

The distribution of Buga Ware does not coincide exactly with that of Sonso pottery, and its main concentration seems to lie within the eastern part of the Sonso range. None has been recorded from the Calima Valley or the Western Cordillera, but specimens were obtained from all over the Cauca floodplain as far north as Madrigal, and from the western slopes of the Cordillera Central up to a height of 2500 m. above sea level at Buenos Aires (fig. 1). It undoubtedly occurs in the Quindío and was probably fairly common there. A photographic archive compiled by Bennett and Ford, and now in the care of the Museo Nacional, illustrates several Buga pots from the collections of the Villegas and Arango families whose specimens are nearly all of local Quindío origin.

Until more is known about the chronology and relationships of Buga Ware it seems best to treat it as a separate entity in the hope that future research will resolve the problems.

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APPENDIX

Radiocarbon Age Determinations

In this section are listed and discussed all radiocarbon measurements from our excavations in the Calima and Cauca valleys. Several of these determinations, in particular the ones from Calima, were published before the material from the Moralba and Yotoco Ferry excavations had been analysed in detail. The pottery nomenclature employed in this paper was not worked out until 1968-9, and the provisional terminology underwent some modification between 1962 and 1968. Stylistic attributions given in this Appendix supersede, and in part correct, those published in various issues of Radiocarbon.

All measurements are based on the half life of 5,568 years, and are quoted with one standard deviation.

Yotoco Phase

IVIC-598: 850 ± 140 (A.D. 1100). Yotoco Ferry.

Fibrous twig charcoal (? bamboo or cane) from a limited area of Stratum IIIB at the Yotoco Ferry site. Depth 1.40-1.50 m. below the surface. Stratigraphically about midway through the Yotoco occupation of the site, and from a higher level than GrN-4694. The large error is due to the small size of the sample. The reversal of the expected relative order of IVIC-598 and GrN-4694 is not statistically significant, and falls within a single standard deviation.

Pretreatment: physical removal of rootlets, and treatment with hydrochloric acid to eliminate any carbonates. The laboratory procedure, using liquid scintillation techniques, is described in Tamers (1965).

Measured 1969. Pub. Tamers (1970).

GrN-4694: 775 ± 65 (A.D. 1175). Yotoco Ferry.

Charcoal fragments from a few pieces of wood, collected from a limited area of Stratum IIIB at Yotoco Ferry. Depth 1.60-1.70 m. below surface. The sample refers to roughly the middle of the Yotoco occupation at the site. This figure is archaeologically acceptable and is consistent with IVIC-598 (see discussion above).

Acid pretreatment (as described in Groningen Date Lists III and IV).

Measured 1966. Pub. Vogel and Waterbolk (1967) p. 151.

IVIC-597: 2840 ± 270 (890 B.C.). Moralba.

Scattered fragments of wood charcoal from the base of the Yotoco stratum in Trench 2 of the Moralba excavation. The small size of the sample (only 254 mg. of carbon) accounts for the large error. The sample was expected to date the start of the Yotoco occupation at Moralba, but the date is too early to be acceptable on archaeological grounds (see discussion in the text). The determination conflicts with IVIC-598 and GrN-4694 from comparable material collected at Yotoco Ferry. Another sample from Moralba (GrN-5762) was submitted to the Groningen laboratory, and also produced an early date. The measurements from Moralba are consistent with each other, but cannot be correct. We have no explanation to offer for the discrepancy. The most obvious source of contamination, rootlets and insect remains (visible in the deposit), should produce a figure which is too recent rather than too old.

Pretreatment: as IVIC-598.

Measured 1969. Pub. Tamers (1970).

GrN-5762: 2750 ± 50 (800 B.C.). Moralba.

Fragments of wood charcoal from just above and below the lower interface of the Yotoco stratum (level 8) in a restricted area of Trench 2 of the Moralba excavation. Was expected to date the start of the Yotoco occupation, but is unacceptably early. See discussion of IVIC-597.

Acid and alkali pretreatment.

Measured 1969. To be published in Groningen Radiocarbon Dates XI.

GrN-4940: 180 ± 40 (A.D. 1770). Yotoco Ferry.

Fragments of wood charcoal from a restricted area near the top of Stratum IIIA of the Yotoco Ferry excavation at a depth of 1.20 m. below surface. This stratum represents the fill of a gully separated by an erosional unconformity from the underlying stratum (IIIB) which contained unmixed pottery of the Yotoco style. The gully fill contained Yotoco sherds with some probable Sonso admixture. The radiocarbon measurement suggests that all the material in this fill was redeposited. Study of the sedimentation at the Yotoco site is still incomplete, but should eventually settle the matter beyond doubt.

Acid and alkali pretreatment.

Measured 1966. Pub. Vogel and Waterbolk (1967) p. 152.

Sonso Phase

IVIC-596: 710 ± 60 (A.D. 1240). Moralba.

Wood charcoal from the base of the Sonso stratum (Level 6) in Trench 2 of Moralba excavation, with possible admixture of charcoal fragments from a post hole of the Sonso phase. Gives an approximate date for the start of the Sonso occupation of the site.

Pretreatment: as IVIC-598.

Measured 1969. Pub. Tamers (1970).

GrN-5761: 470 ± 45 (A.D. 1480). Moralba.

Sample taken from a single piece of burned wood from the lower portion of the Sonso stratum (Level 6) in Trench 2 at Moralba. Stratigraphically intermediate between IVIC-596 and GrN-4697.

Measured 1969. Information from Dr. J. C. Vogel.

GrN-4697: 400 ± 70 (A.D. 1550). Moralba.

Part of a single piece of burned wood (? cane) lying horizontally on the upper surface of the Sonso stratum in Trench 2 of the Moralba excavation. The pottery was wrongly labelled 'Moralba Ware' in the original Radiocarbon report.

Acid pretreatment.

Measured 1966. Pub. Vogel and Waterbolk (1967) p. 152.

GrN-4695: 370 ± 70 (A.D. 1580). Yocambo.

Wood charcoal fragments taken from a limited area of cleaned-up river bank exposure at Finca Yocambo, Cauca Valley. The charcoal came from a natural stratum c. 1.82 m. below ground surface, with abundant Sonso pottery (not Moralba Ware, as stated in the original Radiocarbon report).

Acid and alkali pretreatment.

Measured 1966. Pub. Vogel and Waterbolk (1967) p. 152.

NPL-60: 700 ± 85 (A.D. 1250). La Primavera.

Wood charcoal from Tomb 1 of the La Primavera cemetery, Municipio of Darién, Calima Valley. The tomb was of shaft-and-chamber type, but was never used for burials. The chamber was empty, but the fill of the 11 m. shaft contained charcoal fragments and numerous sherds of Sonso type with no significant degree of weathering. There was no natural stratigraphy within the shaft fill, and it was not clear whether the hole was deliberately used as a rubbish pit or whether it was merely backfilled with midden material containing sherds from the adjacent habitation site. In either case, a deep shaft in the middle of a settlement would probably not be allowed to remain open for a long time. Because charcoal was scarce, and possibly was redeposited, no account was taken of depth within the shaft. The sample is a composite one made up of fragments from all levels of the shaft fill.

Pretreatment: Boiled in 1% HCl for 15 min., boiled in 1/4 % NaOH for 15 min. Material from the upper 3 m. of fill was pretreated separately from that taken from lower levels but was combined for measurement. The precision of the physical measurement is one standard deviation and corresponds to ± 21 years. This is combined with an additional uncertainty due to the De Vries effect, expressed as equivalent to one standard deviation of ± 80 years.

Measured 1963. Pub. Callow, Baker and Pritchard (1964) p. 29.

IVIC-160: 715 ± 60 (A.D. 1235). Varsovia.

Unburned wood from a trough carved out of a tree trunk. The trough was discovered by a farmer in a waterlogged shaft-and-chamber tomb at Finca Varsovia, Municipio of Darién, Calima Valley, and had been stored under a farm house for some years before being collected in 1962. The associated material included two wooden stools and five vessels of Sonso type, one of them with resist painted wedge-and-stripe decoration. The trough had four projecting handles at each end, and the sample was taken from the handle nearest to the circumference of the trunk, without however including the bark or outermost rings. This sample is wrongly described in the original Radiocarbon report, where it is said to come from a wooden canoe associated with Calima pottery and found at the bottom of a dry lake near Darian.

Pretreatment: as IVIC-598.

Measured 1964. Pub. Tamers (1966) p. 209.

GrN-5763: 615 ± 30 (A.D. 1335). Hacienda Moralba (Calima Valley).

Uncarbonized wood from the body of a trough hollowed out from the trunk of a tree. It was excavated by a farmer in a shaft-and-chamber grave at the Hacienda Moralba, Calima Valley, and was studied by Dr. Yves Prêt at the time of discovery. The tree trunk has been identified as Lafoensia punicifolia (family Lythraceae) by Dr. Harry Corothie of the Universidad de los Andes, Mérida, and by Dr. B.F. Kukachka of the U.S. Forest Products Laboratory. Associated with the trough were an undiagnostic plain olla and gold ornaments of previously undated types, including twisted wire objects of the kind illustrated by Pérez de Barradas (1966; p. 288, fig. 94). The radiocarbon measurement suggests a Sonso affiliation. The C 14 sample was taken by Bray in 1964, after the trough had been in storage for almost twelve months.

Acid and alkali pretreatment.

Measured 1969. To be published in Groningen Radiocarbon Dates XI.

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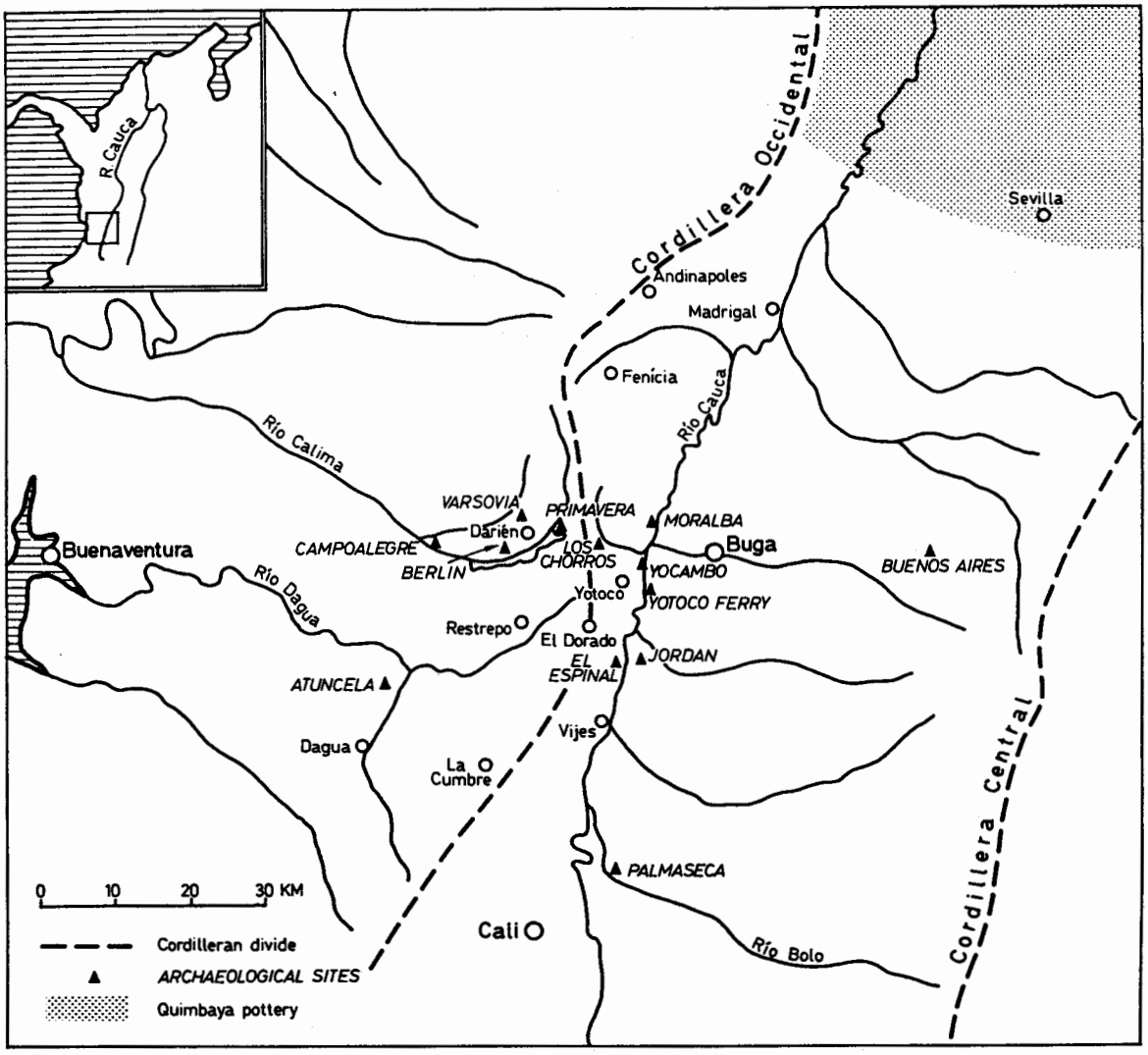

Fig. 1

Plate XXXVIII. Map of the Buga district.

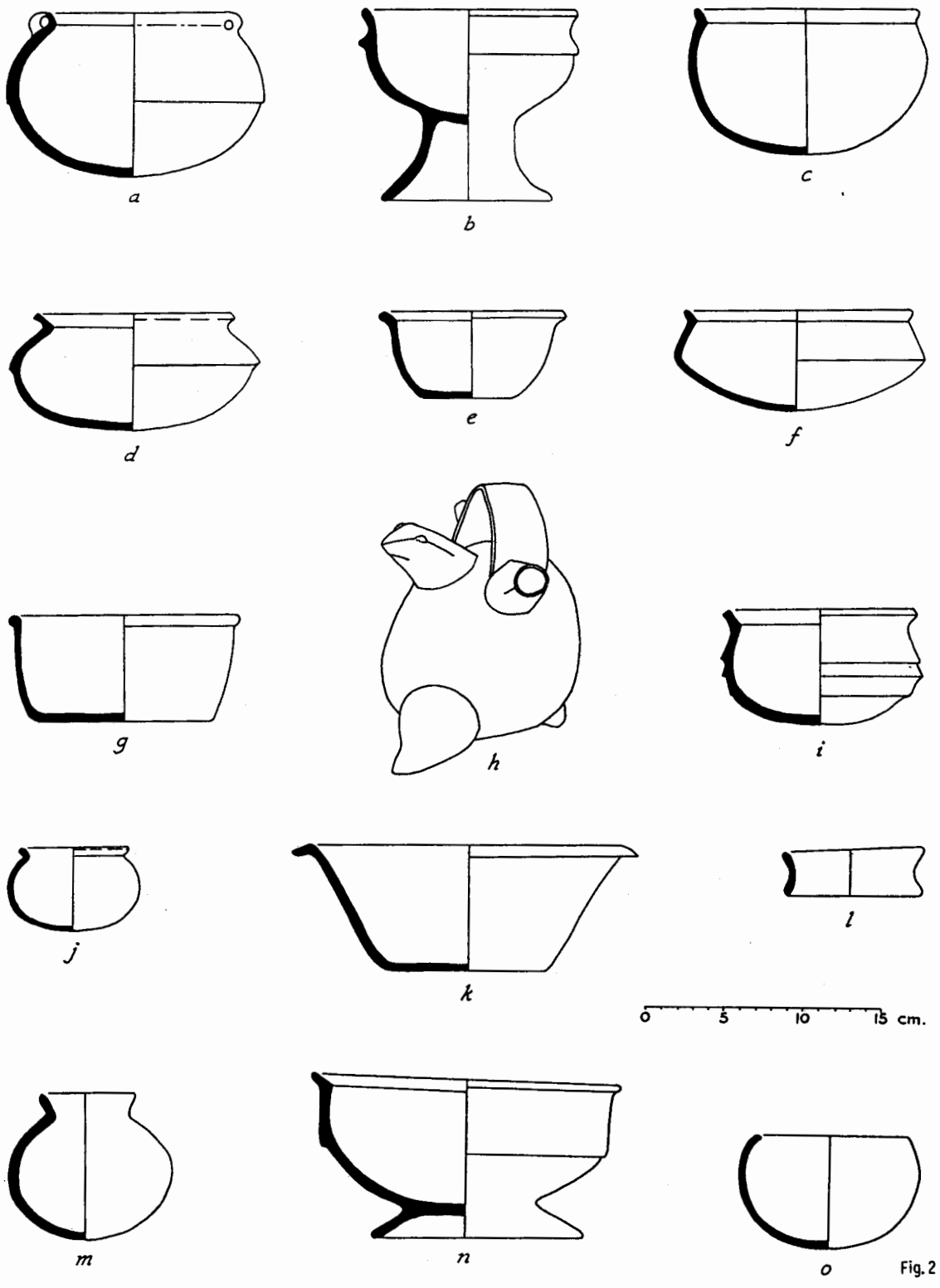

Plate XXXIX. Vessel forms bearing Yotoco fine painted decoration.

a

b

c

d

Fig. 3

Plate XL. Yotoco Bowls obtained in Restrepo (collection of Dr. J. Mejía Marulanda).

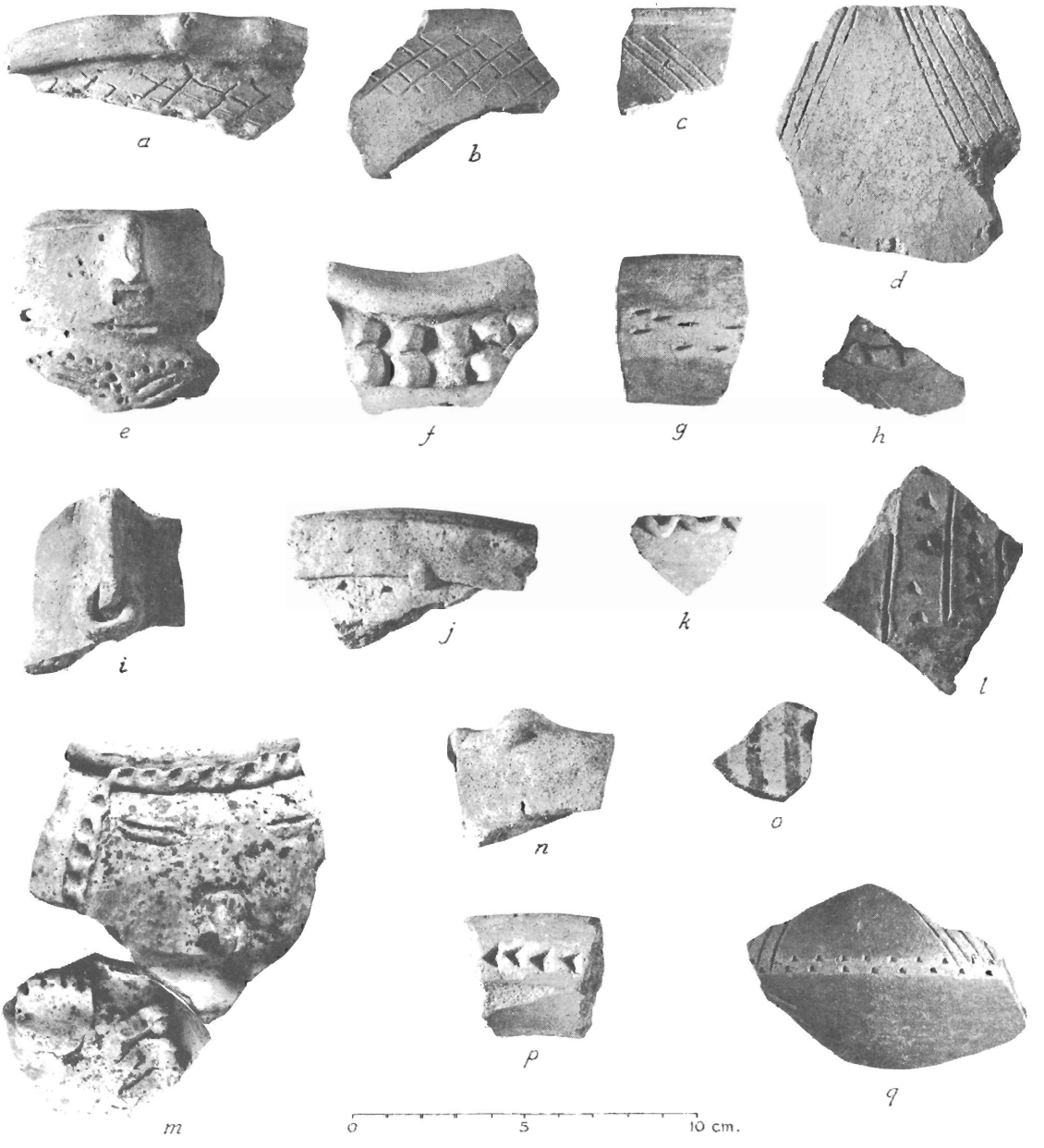

Fig. 4

Plate XLI. Pottery of the Sonso phase from various sites in the Cauca Valley. Sherds c, d, g, h, and k are from the Moralba excavation.

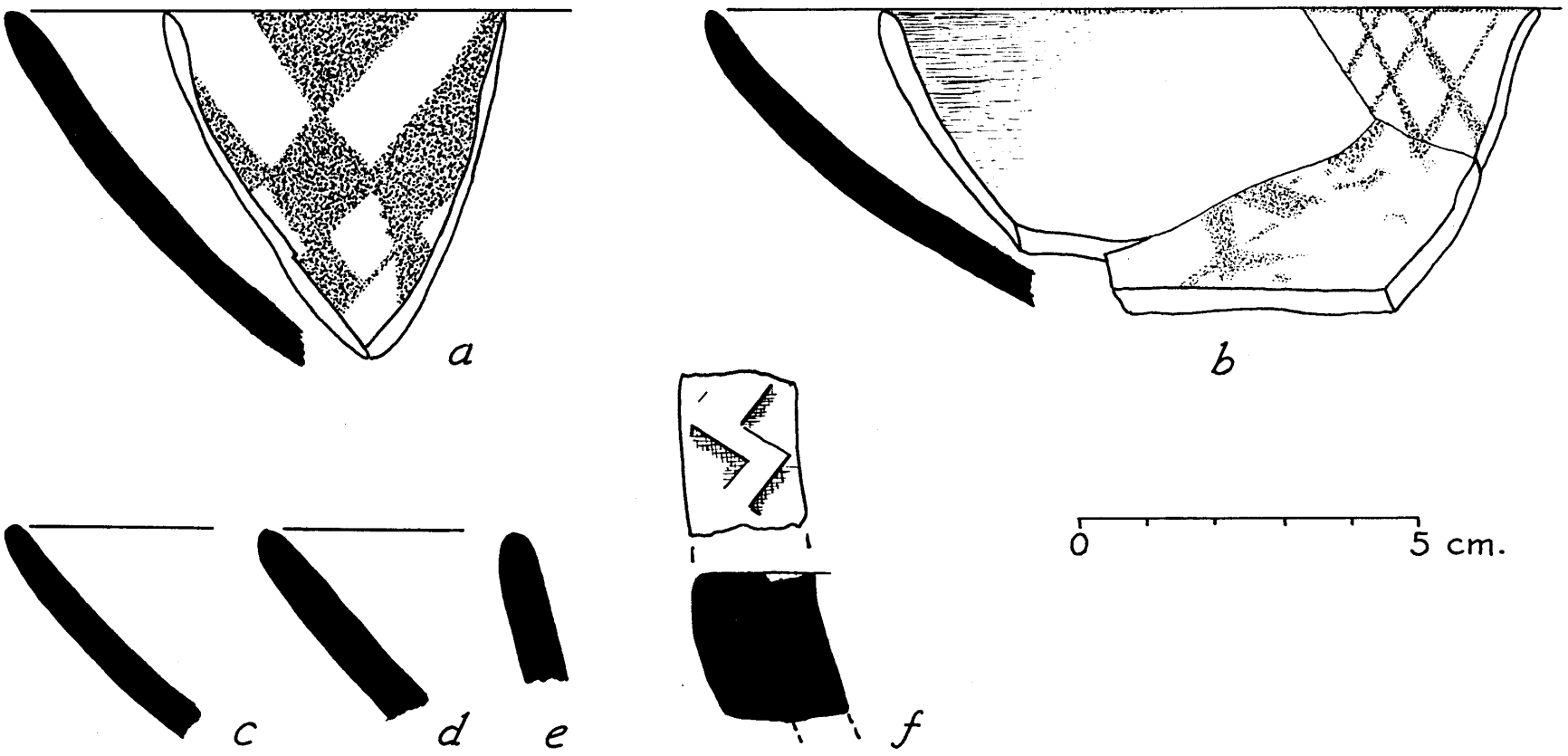

Fig. 5

Plate XLII. Sherds of the Moralba phase from the type site. Stippled areas indicate red painting.

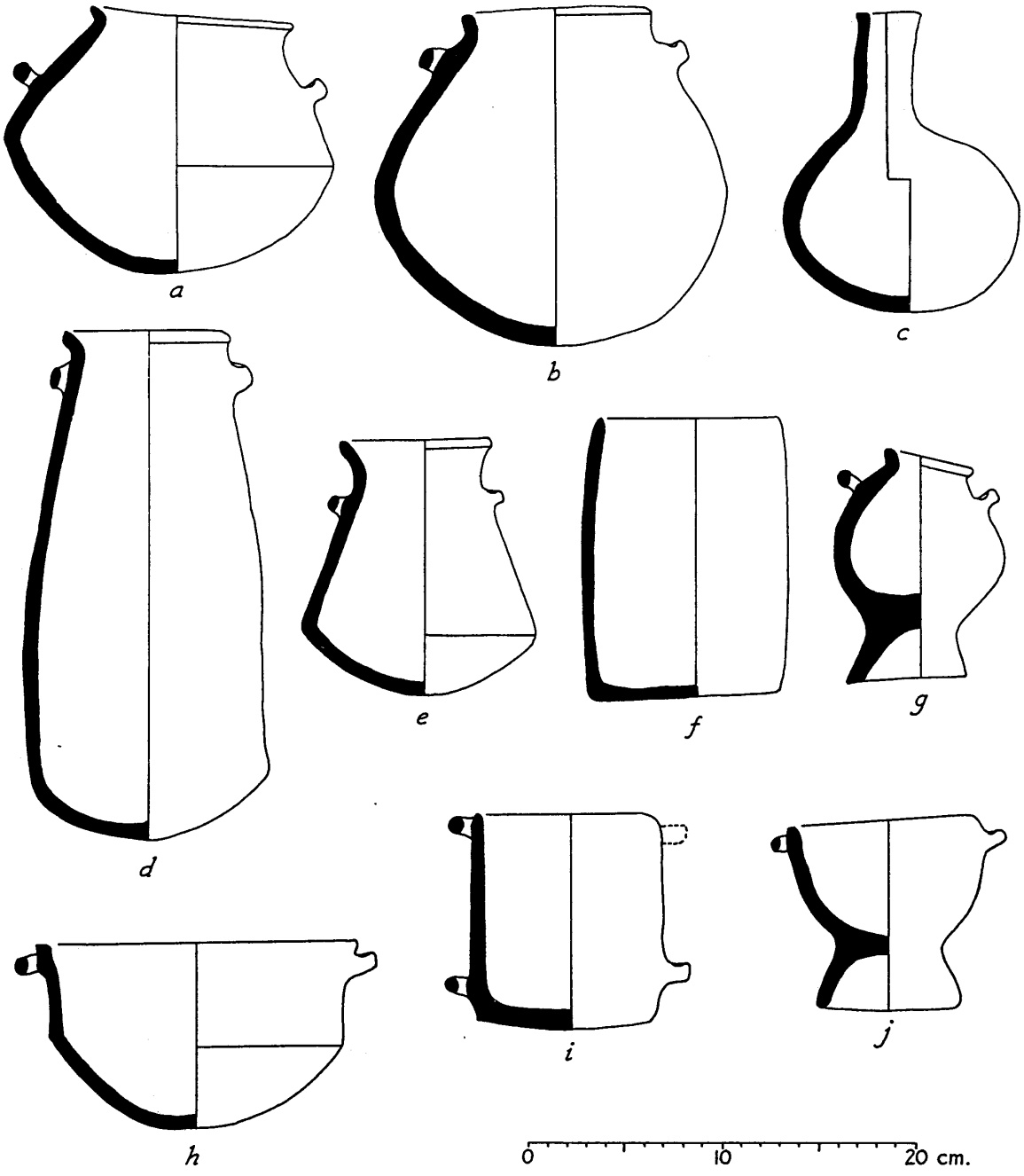

Plate XLIII. Buga Ware from sites in the Cauca Valley.